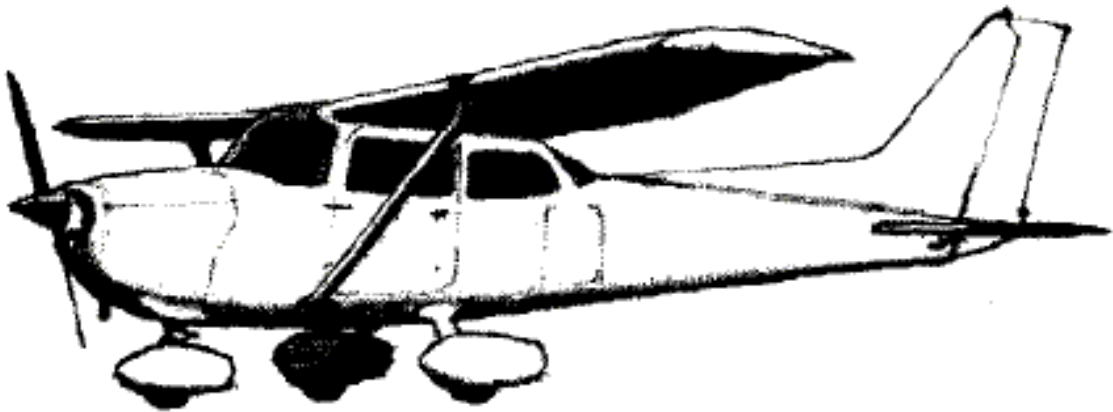


Civil Air Patrol • Minnesota Wing
Emergency Services



**Mission Check Pilot
Handbook**



April 2000

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Foreword

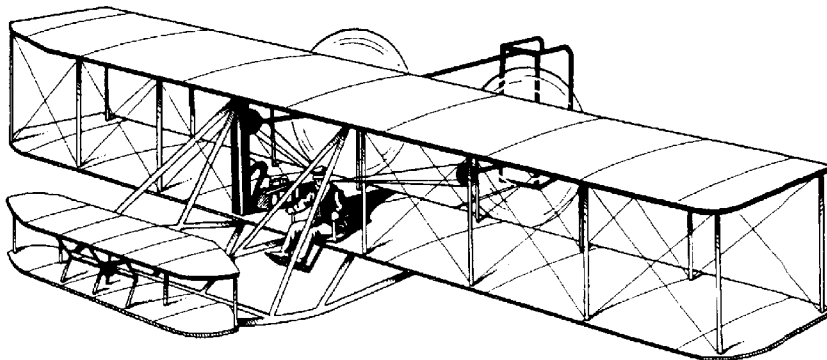
The Minnesota Wing Emergency Services staff has prepared this Handbook to help Mission Check Pilots administer Form 91 Mission Pilot flight checks, and to aid commanders in the selection of qualified Mission Check Pilots for their units.

The Form 91 guidelines contained in this handbook were initially written by ES staff members. The first draft of the guidelines was presented at the first Mission Check Pilot seminar on 16 May 1998. The seminar participants also assisted the ES staff in establishing suggested criteria for the selection of Mission Check Pilots. In addition, Maj. Manny Block and Lt. Col. George Cobley, Iowa Wing DOV, provided very useful written comments. The first version was issued in August of 1998, and was revised slightly in October, 1998. The current version includes changes resulting from some recent amendments to CAPR 60-1.

We hope these guidelines will aid in the selection and training of well-qualified Mission Check Pilots and in the consistent, safe and fair administration of Mission Pilot flight checks. It should always be kept in mind that these recommendations are guidelines only; the ES staff does not intend to create or suggest any additional layers of regulations or requirements that do not already exist at the National or Wing level. This is a work in progress; we anticipate future revisions, and we welcome suggestions from everyone who uses this handbook.

Please send your comments and suggestions to:

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Selecting Mission Check Pilots

Ideally, each senior squadron with active pilots should have at least one qualified Mission Check Pilot. It is important, however, that all Mission Check Pilots appointed by their units possess adequate qualifications and experience. The August 1998 revision of CAPR 60-1 requires a Mission Check Pilot to be "a highly experienced and qualified mission pilot with a thorough knowledge of CAPR 50-15 and 55-1," to have completed at least *twenty-five* actual or training sorties as *PIC*, to have completed a Form 91 evaluation as a Mission Check Pilot, and to be designated in writing by the Wing Commander. CAPR 60-1, ¶ 3-1(g); 3-9(a).

This Handbook does not impose new or different requirements beyond those contained in the CAP regulations and the FARs. It is important that enough current, qualified mission pilots are available as needed to accomplish CAP's missions. Interested, qualified people should be encouraged to participate in this program; accordingly the ES staff has carefully tried to avoid imposing additional limitations or qualifications beyond those that already exist.

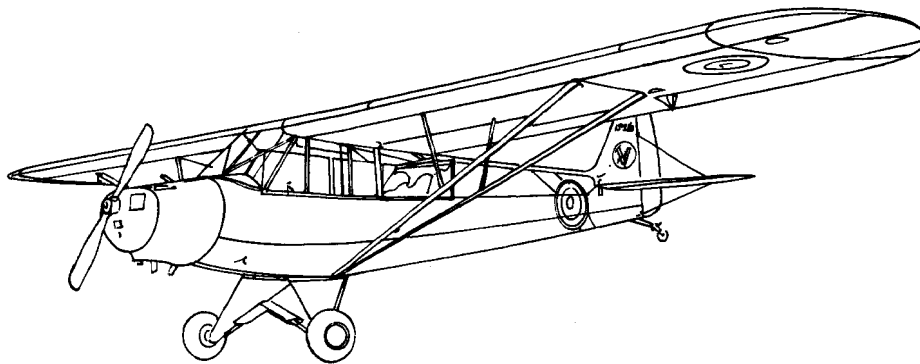
To aid unit commanders in making fair and objective decisions regarding the selection of qualified people to serve as Mission Check Pilots, we offer the following guidelines. The Appendix also contains a checklist that may be used to assist in evaluating a candidate.

Selection Guidelines

1. **Currency.** A Mission Check Pilot candidate must have a current Form 5, Form 91, and must have fulfilled all applicable FAA currency requirements. See CAPR 60-1, Attachment 7.
2. **Flight Experience.** Although CAPR 60-1 does not require a Mission Check Pilot to be a CFI, the experience of a flight instructor is extremely valuable because it presumes some skill and training in evaluating other pilots. For that reason, it is suggested that non-CFI Mission Check Pilot candidates have had some flight experience that has afforded them the opportunity to train, evaluate or monitor another person's flying. This experience could include, for example, regular cadet orientation flights or significant experience training other mission pilots, especially during SAR exercises. It is also recommended that Mission Check Pilot candidates, whether or not they are CFIs, have accumulated PIC time well in excess of the minimum required of a Mission Pilot.
3. **CAP Experience.** Because the purpose of the Form 91 flight check is specifically to evaluate CAP mission skills, as opposed to general flying ability, a Mission Check Pilot should have considerable experience in both simulated and actual SAR missions. A CFI certificate is not required for a person to be a Mission Check Pilot. At the same time, being a CFI and/or being designated a CAP Check Pilot is not sufficient to qualify a person as a Mission Check Pilot if that person -- however competent and experienced he or she might be as a CFI -- has little knowledge or experience relating to CAP SAR procedures. It is suggested that, if possible, a Mission Check Pilot candidate should have taken part in at least one actual, preferably relatively recent, SAR distress mission. Additionally, some SAR or Counterdrug mission staff experience, as, for example, working Air Operations, is highly desirable.
4. **Participation.** We strongly recommend that any pilot who wishes to become a Mission Check Pilot be able to demonstrate a pattern of regular, active and reliable participation in unit activities and SAR exercises, whether or not those activities are funded. A person who tends to show up for training only when the flying is free and convenient might not be an ideal Mission Check Pilot.

5. **Knowledge.** Mission Check Pilots should be well-versed in CAP flight and SAR rules and procedures, particularly the relevant sections of CAPR 50-15, 55-1 and 60-1.

6. **Recommendation.** The appointment of a new Mission Check Pilot should be based on the written recommendation of the unit commander and/or another Mission Check Pilot. A Form 2A will suffice as the unit commander's recommendation; the applicant's specific qualifications and experience should be listed on the 2A, which is to be sent to the Minnesota Wing DOS. In addition, we suggest that a current Mission Check Pilot who is familiar with the candidate recommend the appointment to the unit commander. An appointment should not be denied for the sole reason that the unit already has one or more active Mission Check Pilots.



Administering Form 91 Flight Checks

The guidelines that follow are intended for essentially the same purpose as the FAA's Practical Test Standards. That is, their purpose is to give Mission Check Pilots a reasonably objective framework for evaluating the skills of new or renewing Mission Pilots. We hope that these guidelines will help to ensure that all Minnesota Wing Mission Pilots have been trained and evaluated, insofar as is practicable, to the same minimum level of proficiency.

The Mission Check Pilot must ultimately consider each pilot's skills and knowledge on an individual basis. In general, it is assumed that an initial evaluation, or an evaluation of a pilot with whom the Mission Check Pilot is unfamiliar, will be more intensive than that of a pilot whose abilities and experience are known. However, none of the tasks should be omitted entirely, even if the pilot is an experienced Mission Pilot or is well-known to the Mission Check Pilot.

Although the Message Drop Procedure is the only task CAPF 91 *expressly* indicates is to be evaluated by verbal discussion rather than by in-flight demonstration (Appendix, p. A-19), in practice it is permissible to evaluate other tasks on the basis of oral discussion in situations where performing them in flight may be impractical or unsafe. Determining which tasks can be demonstrated by oral discussion by a particular pilot is up to the discretion of the Mission Check Pilot. This decision should be made with some caution, however. If only an oral discussion of any Form 91 task is to be substituted for in-flight demonstration, the Mission Check Pilot must be reasonably confident that the pilot would, in fact, be able to perform that procedure, and should be prepared to justify having required only oral discussion of a procedure rather than in-flight evaluation if an accident should later occur.*

If a Mission Check Pilot candidate is not a CFI, he or she nevertheless should be strongly encouraged to fly the evaluation from the right seat. CAPR 60-1 does not explicitly require this. However, Attachment 7, *Administration of CAP Form 91 Mission Flight Checks*, ¶ 3(a), states as follows:

The applicant is pilot-in-command unless specific circumstances require the mission check pilot to function as such for a portion of the flight. . . . *If circumstances require the mission check pilot to assume command of the aircraft during the mission flight check to prevent a dangerous situation*, the mission flight check shall be considered unsatisfactory and immediately terminated.

This paragraph clearly assumes that circumstances could arise under which the Mission Check Pilot would have to act as pilot in command and take control of the aircraft to prevent an unsafe condition from occurring. Therefore we may conclude that all Mission Check Pilots must be expected to be able to maneuver the aircraft safely and competently from the right seat. As part of the Mission Check Pilot standardization effort, non-CFI Mission Check Pilots will be offered right-seat training during Wing-sponsored training exercises.

In all circumstances, the most important consideration is safety. The evaluation should not be performed if there are any doubts relating to the preparation or condition of the Mission Pilot candidate, the Mission Check Pilot, the aircraft, or the weather. The candidate, not the Mission Check Pilot, is presumed to be the pilot in command; instruction should be kept to a minimum and should relate only to relatively minor items.

* In 1988, in another Wing, a newly-qualified Mission Pilot was unable to maneuver the aircraft out of a canyon, and it collided with the terrain. The aircraft was substantially damaged and the pilot and crew were injured. The NTSB report noted that the *only* mountain search task the pilot had not been required actually to demonstrate in flight on his recent Form 91 flight test was canyon search procedures.

If a mission flight check is unsatisfactory, the Mission Check Pilot should explain to the pilot specifically where improvement is needed. The pilot must arrange for any additional training that may be necessary, and must re-take the Form 91 evaluation with the same Mission Check Pilot unless the Mission Check Pilot agrees that someone else may administer the recheck. Since a Mission Pilot applicant will have taken a Form 5 flight check within the past year, presumably he or she will demonstrate adequate basic flying skills. However, if the Mission Check Pilot observes any significant deficiencies in the pilot's flying skills during the mission flight check, the Wing Standardization/Evaluation officer should be notified in order to determine whether additional flight instruction or a retake of the Form 5 flight test is necessary.



Form 91 Evaluation Guidelines

The guidelines that follow correspond to the Form 91 itself, which is included in the Appendix to this Handbook.

I. ORAL DISCUSSION

Note: If an initial check-out is being given, at least one hour usually will be needed to cover the topics listed under the Oral Discussion section of the Form 91. Less time might be required for Form 91 renewals. It is advisable to arrange in advance for sufficient time to complete this discussion so it is not rushed or given inadequate attention. The discussion may be incorporated into the preflight planning section.

A. CAPF 116 Written Exam Passed/ES Training Completed.

The Mission Check Pilot must verify that the Mission Pilot candidate has completed the ES written exam and is eligible to act as a Mission Pilot. The candidate should present his or her 101 and/or 101T card, and, for initial Mission Pilot check-outs, the pilot's Form 116 test results and Minnesota Wing Form 10e showing completion of required training with appropriate sign-offs, or other evidence of completed training.

B. Mission Base Procedures (Sign In, Flight Plan, Reimbursement Forms)

The candidate must be able to demonstrate that he or she knows how to complete all mission paperwork, including Forms 103, 104, 108 and 121.

C. Air-to-ground Signals

The candidate must be familiar with air-to-ground signals as described in CAPR 55-1, Attachment 5-1, par. 3. The candidate may use printed reference materials for this discussion.

D. Mission Safety Principles

The candidate must be familiar with basic mission safety principles relating to flight line signals and procedures (printed reference materials may be used), flight planning, crew safety briefing, safe search altitudes (1,000' AGL), safety of crew and passengers, weather and weather resources, and inbound and outbound and adjacent grid traffic separation.

E. CAP Radio Procedures (as required)

The candidate must be familiar with standard CAP radio procedures and must be able to operate all radios installed in the aircraft.

F. Individual & Crew Equipment/Clothing

The candidate must wear an approved CAP uniform and should be appropriately dressed for the conditions, and must have and/or be able to list equipment that should be carried during SAR missions (e.g., flashlight, maps, cold weather gear, water, food, etc.).

G. Search Procedures

The candidate must be able to identify and describe the search procedures identified in CAPR 55-1. The discussion should include procedures for mountain/rough terrain searches.

H. Map and Chart Reading

The candidate must possess current sectional charts, and must be able to locate a search area or grid on a chart using latitude/longitude coordinates and terrain features. He or she must be able to identify a grid on a chart using the grid number, and determine the course to be flown to the search area, the time en route, and the time needed to complete the mission. He or she must also be able to identify and locate the search area on other maps, such as county and USGS maps.

II. PREFLIGHT PLANNING

A. Determine Performance Limitations (Pilot's Operating Handbook)

This area is extremely important. The candidate must be able to determine the performance limitations for the aircraft to be flown using that aircraft's flight manual. He or she *must* be able to perform weight and balance calculations for the flight, and must demonstrate an understanding of the method of calculation, as well as effects of CG loading. The Mission Check Pilot should give the candidate either an actual or hypothetical weight and balance problem, and allow him or her a reasonable amount of time to calculate it without assistance. The candidate must also be familiar with the airplane's V speeds, especially stall, best glide, and maneuvering speeds, and must be able to determine takeoff and landing performance according to the POH.

B. Obtain Mission Briefing

The candidate must be able to demonstrate that he or she knows how to obtain a mission briefing/debriefing from designated Air Operations personnel, and to complete all portions of CAPF 104, including all post-flight information.

C. Gridded Sectional

The candidate must bring his or her own gridded sectional charts, and must be able to identify grids and quarters of grids and accurately locate points on the charts based on latitude/longitude coordinates.

D. Observer Briefing

The candidate must be able to discuss the appropriate allocation of duties to the observer/scanner and how to brief the crew about the mission.

E. Fuel Planning and Reserve

The candidate must be able to plan the time needed for the mission and determine the fuel needed, including necessary reserves, with reference to the airplane flight manual.

F. Ground Team Coordination

The candidate must be able to discuss pre-flight planning with the ground team leader, including air/ground signals, procedures for keeping the airplane in sight of the ground team, radio communications, no-radio procedures, and maneuvers for guiding the team.

III. MISSION FLIGHT PROCEDURES

Note: The purpose of the Form 91 evaluation is not to instruct the candidate, but to determine whether he or she is able to perform the duties of a Mission Pilot. The Mission Check Pilot should avoid assisting the candidate in navigating or operating equipment unless necessary for safety reasons. Whenever the candidate has been asked to perform some task involving the use of electronic equipment, or to read maps, or perform any other task that requires the candidate to direct his or her attention inside the cockpit, the Mission Check Pilot *must* take responsibility for traffic/obstacle avoidance.

A. VISUAL SEARCH PATTERNS AND PROCEDURES

1. Locate Grid or Area (without electronic aids)

The candidate must be able to locate and identify a grid entry point or other location by pilotage without assistance from the check pilot; demonstrate a grid search (at least two passes) using visual references only, maintaining selected track spacing, airspeed, and consistent altitude, +/- 100 feet. The Mission Check Pilot ordinarily should assign a quarter grid or other small area to save time and to ensure that the candidate is familiar with the grid system and knows how to locate portions of grids while in flight, both with and without electronic aids.

2. Establish Search Altitudes

Before entering a search area, the candidate must determine the height of the terrain and any obstacles, and establish an altitude appropriate for the terrain and the search method (1,000 feet or more AGL). The candidate must also be able to explain what search visibility is and how it depends on weather and the expected size and appearance of the objective. He or she must be able to explain the effects of terrain, ground cover, search visibility and altitude on Probability of Detection.

3. Parallel Search Procedures

Without assistance from the Mission Check Pilot, the candidate must demonstrate that he or she can locate the route by referring to a chart and/or ground features; set up a search track at the altitude, airspeed and spacing appropriate for the terrain and conditions (1,000 feet or more AGL); and can follow the track, while maintaining spacing and wind correction as necessary. The candidate must maintain a consistent search altitude, +/- 100 feet.

4. Creeping Line Search Procedures

Without assistance from the Mission Check Pilot, the candidate must be able to locate the route by referring to a chart and/or ground features; set up the track at altitude, airspeed and spacing appropriate for the terrain and conditions (at least 1,000 feet AGL); and follow the track, maintaining spacing and wind correction as necessary; with attention to airspeed and altitude in turns. He or she must maintain a consistent search altitude, +/- 100 feet.

5. Expanding Square Search Procedures

The candidate should either select a ground reference, or locate the reference selected by the check pilot; set up a track at an altitude, airspeed and spacing appropriate for the terrain and conditions, and determine and follow the track, maintaining spacing and wind correction as necessary, with attention to airspeed and altitude in turns. He or she must maintain a consistent altitude, +/- 100 feet.

6. Ground Team Coordination

The candidate must demonstrate in flight, or, if no ground team is available, explain verbally, the proper techniques for directing a ground team to a target, both with and without radio communication, using appropriate directions and references.

B. ELECTRONIC SEARCH PATTERNS & PROCEDURES

1. Locate Starting Point (using electronic nav aids).

The candidate must demonstrate the ability to perform a grid search (at least two passes) using GPS, maintaining the selected track spacing, airspeed, and altitude +/- 100 feet (at least 1,000 feet AGL). He or she must also demonstrate in flight and/or explain verbally how to locate a point using GPS, VORs, and ADF. The candidate's demonstration of GPS navigation proficiency should include an explanation and/or demonstration of how to save a present position, recall a position, program a user-defined waypoint, and use the cross-track navigation, course offset, and airport/VOR search features. The Mission Check Pilot must ensure that the pilot does not fixate on the electronic device to the exclusion of visual references. Some GPS work may be done on the ground.

2. Establish Appropriate Search Altitudes

The candidate must determine and establish an altitude appropriate for the terrain, radio reception, and weather conditions (at least 1,000 feet AGL).

3. VHF-DF Procedures

The candidate must demonstrate knowledge of the operation of the particular aircraft's DF equipment, including the volume and sensitivity controls; he or she should use the DF equipment in flight to locate an ELT or, if no ELT is available, describe the procedure verbally. The candidate should explain the use of altitude when using the DF equipment to expand or reduce the size of the search area. It is suggested that pilots review CAP Pamphlet 2, which contains an in-depth description of ELT search procedures.

4. Wing Null Procedures

The candidate may either demonstrate in flight or explain verbally how to locate an ELT signal using the wing null method. He or she must know where the communications antennas are located on the aircraft being used; establish or describe an appropriate altitude; explain how triangulation is used to find a signal; use or identify a proper bank angle (45 degrees) and rate of turn; and maintain altitude in turns +/- 100 feet.

5. Aural (build-fade) Procedures

The candidate may be asked to demonstrate how to use communications radios to locate an ELT, where no DF equipment is available, using the build-fade method (the procedure is not described in CAPR 55-1) in flight or explain it verbally.

C. MOUNTAINOUS TERRAIN PROCEDURES.

The candidate must be able to explain appropriate procedures for airborne searches in mountainous or hilly terrain during the oral discussion portion of the evaluation.

D. EMERGENCY PROCEDURES

1. Low Altitude Engine Failure

If an engine failure is simulated as part of the Form 91 flight check, the check pilot *must* ensure that a safe off-airport landing site is available before starting this part of the evaluation. The candidate should immediately commence, by memory, appropriate emergency procedures as described in the airplane flight manual, including trim for best glide, locate landing site, restart, and approach to simulated off-field landing. A detailed discussion of these procedures is contained in the chapter of this Handbook entitled "Low Altitude Emergencies."

2. Ditching

The candidate must be able to describe appropriate ditching procedures as described in the airplane flight manual.

3. Landing on Unprepared Surface

The candidate must be able to explain the criteria for selection of a soft field or off-airport landing site and describe the proper procedures for this type of landing in accordance with the airplane flight manual. Any *actual* landing on an unpaved runway should be made with caution, and only on a public airfield.

4. Deteriorating Weather

The candidate must be able to explain what actions should be taken, and when, if the weather deteriorates during a search mission, including how to locate the closest airport, contact Flight Watch or ATC, and obtain an IFR clearance, if appropriately rated, or other ATC assistance. The candidate must be familiar with methods of thunderstorm, wind shear and icing avoidance.

E. MISSION FLIGHT MANEUVERS.

Note: The candidate must be able to perform maneuvers A and B in accordance with the FAA Practical Test Standards for the Private Pilot rating. The standards listed below are taken directly from the FAA Private Pilot PTS. We suggest that those Mission Check Pilots who are not CFIs obtain instruction from a CAP Check Pilot relative to the proper evaluation of these maneuvers.

1. 720 Degree Steep Turns

Objective: To determine that the applicant:

- a. Exhibits knowledge of the elements related to steep turns.
- b. Selects an altitude that will allow the task to be performed no lower than 1,500 feet (460 meters) AGL.
- c. Establishes V_A or the recommended entry speed for the airplane.

- d. Rolls into a coordinated 360-degree turn; maintains a 45 degree bank, ± 5 degrees; and rolls out on the entry heading, ± 10 degrees.
- e. Performs the task in the opposite direction, as specified.
- f. Divides attention between airplane control and orientation.
- g. Maintains the entry altitude, ± 100 feet (30 meters), and airspeed, ± 10 knots.

2. Turns About a Point

Objective: To determine that the applicant:

- a. Exhibits knowledge of the elements related to turns around a point.
- b. Determines the wind direction and speed.
- c. Selects the reference point with an emergency landing area within gliding distance.
- d. Plans the maneuver so as to enter at 800 to 1,000 feet AGL, at an appropriate distance from the reference point, with the airplane headed downwind and the first turn to the left.
- e. Applies adequate wind-drift correction to track a constant radius circle around the selected reference point with a bank of approximately 45 degrees at the steepest point in the turn.
- f. Divides attention between airplane control and the ground track and maintains coordinated flight.
- g. Completes two turns, exits at the point of entry at the same altitude and airspeed at which the maneuver was started, and reverses course as directed.
- h. Maintains altitude, ± 100 feet (30 meters); maintains airspeed, ± 10 knots.

3. Message Drop Procedure (verbal only)

The candidate must be able to describe the proper method for dropping a message from an aircraft as accurately as possible, avoiding damage to the aircraft or harm to property or persons on the ground.

4. Airspeed Control

At all times during evaluation of assigned search procedures, the candidate must maintain a safe and appropriate search airspeed, and must closely monitor airspeed during low-level operations and turns.

5. Low Speed Maneuvering.

The candidate must be able to demonstrate an awareness of hazards related to low-speed maneuvering, including the need for monitoring airspeed, watching for obstacles, and avoiding unnecessarily steep turns or imminent stalls. The candidate must be able to describe the signs of an impending stall.

6. Low Level Navigation (without electronic navaids)

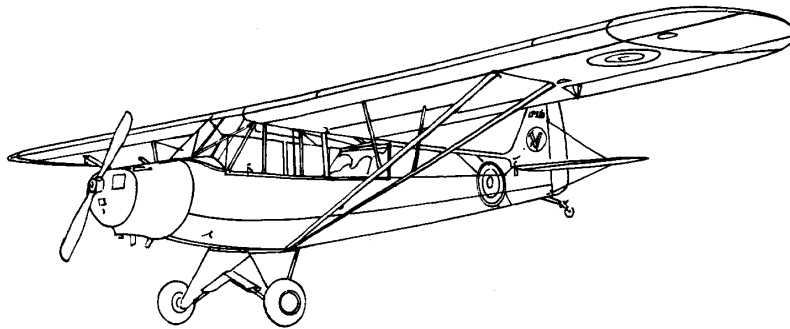
The candidate must be able to locate selected targets and/or terrain features as selected by the check pilot, using sectional charts and other maps, by pilotage and/or dead reckoning and without relying on any electronic navigational aids (VOR, ADF, GPS).

7. Coordination with Ground Team.

If a ground team is available, the candidate must be able to demonstrate that he or she is able to rendezvous with the ground team at a previously-selected location and lead the team to a target using appropriate air-to-ground signals and/or radio communication.

8. Judgment

At all times, the candidate must demonstrate that he or she is primarily concerned with the safety of the flight. The candidate should reject any directions from the check pilot or other personnel that may result in an unsafe situation. He or she must evaluate possibly hazardous weather conditions and respond accordingly, including by declining the flight; as well as take into consideration the condition and capabilities of the crew, the aircraft, and the equipment. The check pilot may disapprove a candidate who demonstrates poor judgment relating to any safety issue.



Low Altitude Emergencies

Note: The proper handling of a simulated engine failure during a Form 91 flight check has been the subject of considerable discussion. Although engine failure procedures are reviewed during the Form 5 flight check, that evaluation does not purport to test engine failure procedures at low altitudes, which is an important consideration given the nature of CAP's mission flying. Obviously there are genuine risks in simulating engine failure at a low altitude. If the simulation is actually performed rather than discussed verbally, it should be done with caution and where and the terrain and weather are suitable. The Mission Check Pilot may consider performing the simulation in flight by designating an artificial "floor" of at least 1,500 feet. In all circumstances *it is absolutely essential* that the Mission Check Pilot commence the procedure at a location where a safe landing can be made in case the simulated emergency should turn into a real one.

Maj. Manny Block has offered the following method for evaluating this task. We recommend that these procedures be thoroughly reviewed and discussed with the Mission Pilot candidate prior to the Form 91 evaluation.

- 1) Each Mission Check Pilot (CFI or otherwise) must be thoroughly familiar with pages 118 through 124 of AC 61-21A, the FAA "Flight Training Handbook". The candidate should also be advised to read it and to be prepared to follow it.
- 2) The task should be performed at search altitude during one of the Form 91 search tasks unless safety dictates a higher altitude.
- 3) Under no circumstances should the Mission Check Pilot allow the aircraft to descend below the FAR minimums.
- 4) Even where the FARs would otherwise permit a descent below 500' AGL, the Mission Check Pilot must not allow the aircraft to descend below that altitude.
- 5) A clear determination of who is PIC must be made before the flight (Note that CAPR 60-1 states that the mission pilot candidate, not the Mission Check Pilot, is considered to be PIC during the evaluation, but that the Mission Check Pilot may be required to take command of the aircraft if an unsafe condition occurs).
- 6) The Mission Check Pilot should initiate the task by retarding the throttle to a low power setting (not less than 1,500 rpm when the OAT is below 40 degrees F) and announcing "simulated engine failure, I have the power controls." The Mission Check Pilot may elect to deploy flaps to negate the effect on the descent rate of keeping partial power on during low outside air temperatures.
- 7) The pilot shall immediately operate the controls so as to maintain altitude until the best glide speed is reached, and must maintain a pitch attitude that will maintain the best glide once that speed is reached. If flaps have been deployed for the aircraft search configuration they should be retracted unless the Mission Check Pilot determines otherwise.
- 8) Almost simultaneously with (7), the pilot shall quickly complete a memorized (or panel-mounted) checklist that includes using carburetor heat, selecting full rich mixture, assuring that the magnetos are on both, and that the fuel selector is on both. The memorized checklist should be consistent with the emergency procedures described in the airplane flight manual.

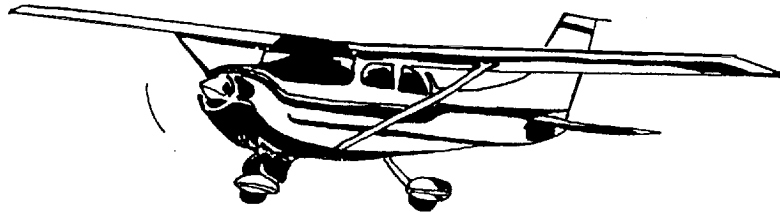
- 9) The aircraft will usually be below radar coverage, and there may be inadequate time for radio communication, especially if a frequency change is necessary. The pilot must also realize that if the engine quits in a high-wing aircraft with the fuel selector on both, the likelihood of a quick restart is very low. The airplane flight manual for the Cessna 172 states that a restart should be attempted *if time permits*. The pilot should understand, however, that the descent rate will be about 800 feet per minute, and that therefore time might not permit any actions other than those of (7) and (8).



- 10) Immediately following (8), the pilot should scan the terrain from the left side of the tail around to the right side of the tail to select a landing area. The pilot must keep in mind that in one minute the aircraft will be able to glide only about a mile or so, depending on the wind. Assuming the engine failure occurs at a normal search altitude, it is unlikely that the airplane will be able to reach an area more than about 1/2 nm away by the time action (10) is completed.
- 11) The landing area selected should generally be the largest open space within gliding range. It is important to keep in mind the fact that the airplane is expendable and should be used to absorb much of the impact in rough terrain. The choice of landing area must be made with *only* the safety of the occupants in mind. Landing under control with full flaps in rough terrain has a very low probability of serious injury to personnel.
- 12) During (10) the pilot should consider whether altitude and terrain permit landing into the wind, and should do so if possible. However, if it is possible to execute a reasonably safe downwind or crosswind landing, the pilot should not risk landing short of the chosen area as a result of attempting to land into the wind.
- 13) The Mission Check Pilot should clear the engine as needed, and must assure that no hazardous action is taken by the pilot.
- 14) Assuming that the task is begun at 800' AGL, at a search indicated airspeed close to the best glide speed, and is terminated at 500' AGL, only about 20 seconds are available to complete the procedure and to identify the selected landing area. This should be adequate for the Mission Check Pilot to determine the probability of a successful conclusion in the event of a real emergency. The entire procedure should include a quick recitation by the pilot of those checklist items that must be completed in the event of an actual emergency landing, i.e., cutting off the mixture and turning fuel selector valve to OFF, turning off the ignition and master switch, and unlatching the doors. After climbing to a safe altitude, the Mission Check Pilot may ask the pilot what maneuvers would have been necessary actually to land on the selected area.

The answers should be consistent with FAA AC 61-21A. The best area is not required; all that is needed is an area that will minimize risk to personnel. In an actual low altitude emergency there is seldom time to optimize the procedure. It is better to let the aircraft nose over or crumple due to rough terrain than to cause fatalities or serious injuries by cartwheeling as the result of trying to get to a better spot, or stalling the aircraft while trying to stretch a glide.

- 15) The Mission Check Pilot must assume responsibility for traffic avoidance. The Mission Check Pilot must also monitor the airspeed and bank angles closely. Pilots may do some unusual and unexpected things during this task.



Professionalism

The success of CAP's training programs, and ultimately the organization's ability to perform its missions, depends on its members' willingness to take their duties as seriously as if CAP were their "real" job -- that is, to be thoroughly professional at all times. An essential responsibility of Mission Check Pilots, one that is just as important as evaluating skills, is that of setting a strong example of professional conduct for the mission pilots in their units.

Professionalism, for CAP Mission Check Pilots and the pilots they train and evaluate, includes:

- **Reliability.** A professional is reliable. You are useful as a Mission Check Pilot only to the extent you can be counted on to perform the functions of the position. In other words, are you consistently available when you are needed to train pilots or administer flight checks? Do you show up to help at SAR exercises when Form 91 evaluations are to be given? Are you willing to take the time that is necessary to help new mission pilots and trainees?

- **Compliance with Regulations.** Mission Check Pilots should always be careful to observe all applicable FAA and CAP regulations. Disregarding or "stretching" a regulation for the sake of convenience or because you disagree with the rule is unprofessional at best and dangerous at worst. We are not immune from FAA enforcement action just because we are CAP members, and violating CAP regulations may also result in loss of flight privileges, or even membership. Take these rules seriously, and insist the pilots you train and evaluate do likewise.

- **Professional Appearance.** On actual SAR and CD missions, members of the public see our mission pilots and, fairly or not, judge them by their appearance. CAP's image is not well-served by pilots who look sloppy and unprofessional. Mission Check Pilots can and should set an example for other pilots. We should keep in mind that it is an honor to be allowed to wear the Air Force uniform, and it should be treated with the respect it deserves. This means the military uniforms must be worn absolutely correctly -- that is, *no* sneakers or unauthorized caps with flight suits; *no* missing patches or insignia; *no* mixing of military and civilian garments. Flight suits and all other utility uniforms, such as the civilian-style polo shirts, must be kept clean and neat.

- **Participation.** As an active Mission Check Pilot you can do much to encourage your units' pilots to contribute to the organization in a meaningful way. Some people may need to be reminded from time to time that CAP is not a flying club; that we will not be able to get all of our training and flight checks funded; and that the price of the free or low-cost flying that is available to all of us is some reasonable level of service. The Mission Check Pilots should assist and encourage participation in such activities as cadet orientation flights, SAR exercises, and squadron exercises.

- **Currency and training.** Professionalism assumes a desire not only to perform well, but always to try to improve one's performance. Mission Check Pilots should make every effort to maintain their own currency and improve proficiency, and also should encourage other pilots to improve *and* to be proud of their skills and accomplishments. Regardless of a Mission Check Pilot's experience or number of certificates and ratings, he or she should be willing to train with and learn from other CAP pilots, check pilots or CFIs. Those who do not actively try to improve will inevitably stagnate.

- **Attention to safety.** Mission Check Pilots must always make safety their foremost concern; the safety of all flights, not just Form 91 flight checks, is paramount. As a Mission Check Pilot you should set an example of consistently safe flying. Don't fly instrument approaches below minimums; don't fly an airplane with known mechanical problems; don't fly when fatigued or ill. And don't be quiet if another pilot does something you believe is unsafe. There is *no* room for carelessness in aviation.

About GPS

The LORAN units in all Minnesota Wing aircraft are being replaced with new II Morrow Apollo GX55 GPS equipment. All Mission Check Pilots will be responsible for becoming familiar with this equipment and ensuring that all Mission Pilots in their units are able to operate it competently. ES Staff are preparing GPS training aids for distribution to all pilots.



These units, which are for VFR use only, have the following features:

Moving map display

Capacity for 30 flight plans of 20 waypoints each

2,000 user waypoints created by lat/long or radial/distance from reference waypoint

Nav displays (pages):

- Latitude/Longitude
- Bearing and distance
- Ground speed and track angle
- Desired track and distance between waypoints
- Cross track error with numeric and graphic CDI
- Display of the "TO" waypoint ident
- ETE and ETA to the "TO" and destination waypoint
- Altitude (from GPS or altitude encoder/converter input)

Database information:

- Airports, including: idents, lat/long, elevation, city/state, facility name, runway data with length and lighting, all published frequencies, and fuel availability
- VORs/NDBs, including: ident, lat/long, facility name, frequency
- Intersections, including ident, and lat/long
- Special Use Airspace indicators including: Class B and C, international CTAs and TMAs, MOAs, Restricted, Prohibited, Warning, Alert, Caution, Danger, and Training Areas

Automatic waypoint sequencing

Built-in simulator for trip planning and training

Real time clock (time and date) in UTC or local

Auto/manual magnetic variation settings

Direct-to NAV function

Parallel track

Nearest waypoint search

Remote waypoint search

Alerts for loss of navigation data, arrival at waypoint, and special use airspace